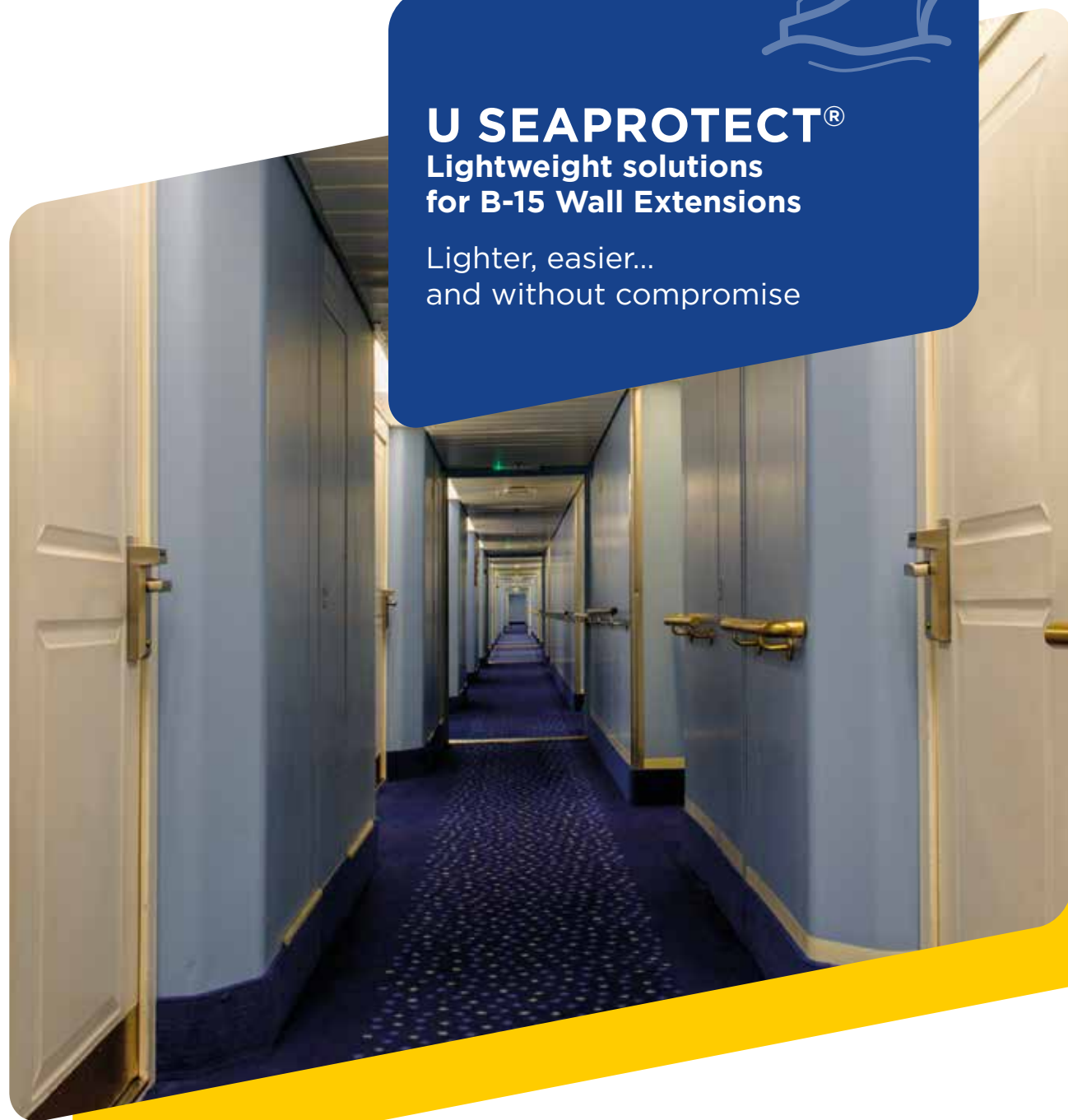




U SEAPROTECT®

**Lightweight solutions
for B-15 Wall Extensions**

Lighter, easier...
and without compromise



Fire compartmentation IN CABINS AND PUBLIC AREAS



Build high-performance B-15 wall extensions - SIMPLY AND COMFORTABLY

As part of the fire protection concept of any shipbuilding project, not only the structure of the ship, but also the technical spaces behind the ceilings, panels or coverings, must be fireproof. Thus, a fire division must be provided every 14 meters, which implies that in the vertical direction, the service spaces must be closed at the level of each deck.

WHAT IS A B-15 WALL EXTENSION?

B-15 wall extensions (also called draught-stop or simply wall extensions) are divisions installed between the cabin ceiling and the ship's structure, as extensions of the cabin walls. They prevent the spread of fire, smoke and flames from one compartment to the other.

Due to the passage of technical services, B-15 wall extensions require particularly performant insulation solutions that are often complex to install.

U SeaProtect® MAKES YOUR LIFE EASIER

Installing B-15 extensions is often a headache for installers. Where alternative insulation solutions are either quite heavy and complicated to install, with a whole bunch of components needed, or extremely fragile, **U SeaProtect®** will make life easier for installers:

- › **Lightweight**
- › **Only 2 products needed**
- › **Compatible with standard accessories**

Choose our new
U SeaProtect®
solution for B-15
wall extensions
for maximum
efficiency
and easy
installation.



Add value at EVERY STEP OF THE PROJECT

Invest in this efficient insulation solution for wall extensions to add value over the entire life of your vessels.



AS A SHIP OWNER

- › Benefit from a lightweight system without compromising safety and comfort
- › Address the most stringent regulations



AS A NAVAL ARCHITECT

- › Design high-performance systems for marine and offshore with light weight solutions
- › Optimise your projects through space-saving designs
- › Bring key benefits to your customers
- › Address the most stringent regulations



AS A SHIPYARD

- › Improve your project planning and overall performance
- › Build sustainable ships
- › Propose an innovative solution to your customers



AS AN INSTALLER

- › Install more easily and safely
- › Reduce installation time and labour costs
- › Optimise your logistics

5 GOOD REASONS TO CHOOSE U SEAPROTECT® FOR YOUR B-15 WALL EXTENSIONS

- › Ensure fire safety
- › Reduce weight
- › Save installation time and cost
- › Control noise pollution
- › Provide thermal comfort & save energy

Ensure FIRE SAFETY



Fire safety is a priority for shipbuilders, designers and contractors, as an integral part of ship design, to protect lives and vessels. Reducing the risk of spread of fire at sea is essential, especially given how difficult it can be for the emergency services to reach isolated locations.

To prevent fire from spreading, horizontal and vertical divisions like ceilings, walls, windows and doors need to resist fire as effectively as possible. The insulation should withstand fire and prevent the spread of flames and hot gases on the unexposed side. The temperature increase on the unexposed surface and the integrity of the construction also have to be evaluated during testing.

PROTECTING FROM FLAMES AND TEMPERATURE RISE

B-15 wall extensions contribute to the overall fire performance of a ship's fire compartments:

- › They provide 30 minutes of integrity, i.e. they prevent the spread of fire, smoke and flames from one compartment to the other for a minimum of 30 minutes.
- › They provide 15 minutes of insulation, that is, they prevent the transmission of radiant or conducted heat so that a certain temperature is not exceeded on the unexposed side for at least 15 minutes.

Our U SeaProtect® solution for B-15 wall extensions is fulfilling IMO requirements and certified by the DNV classification society.

Fire Resistance	B-15 Fire rated solutions (RESOLUTION MSC.307(88) - (2010 FTP CODE))
Fire Reaction	Non combustible; surface flammability with low flame spread properties (for faced insulation) RESOLUTION MSC.307(88) - (2010 FTP CODE)

MAINTAIN THE FIRE PERFORMANCE OF PENETRATIONS

In order not to alter the fire resistance of B-15 wall extensions at the level of the passage of electric cables, pipework and ventilation ducts, it is necessary to reinforce the insulation around the penetrations (for more information, see page 16).

The following penetration types are certified:

- › **Metallic pipe penetrations: copper, steel, stainless steel**
- › **Electrical cable penetrations up to 13 cables (without cable trays)**
- › **Cable trays: sheet metal cable trays & wire frame cable trays**
- › **AC ducts: circular insulated, circular uninsulated, rectangular**
- › **Other penetrations: upon request**

**DID
YOU
KNOW**

Our U SeaProtect® solution for B-15 wall extensions can be used up to a maximum height of 2 meters.

Reduce WEIGHT



Lightweight, compressible and flexible, our U SeaProtect® solution for B-15 wall extensions is easy to handle and takes up less space, leading to significantly lower costs in terms of logistics and installation for installers and distributors.

With only 3,3 kg/m² for **U SeaProtect® Slab 66** and 1,38 kg/m² for **U SeaProtect® Roll 46 Alu1** (used around penetrations), our **U SeaProtect® system for B-15 wall extensions** is one of the lightest on the market. In addition, the reduced length of the insulation around the penetrations further reduces the weight of the system.

REDUCE WEIGHT TO OPTIMISE OPERATING COSTS

Where on a ship, each additional kilogram means higher fuel consumption, any weight saving significantly reduces operating costs.

Our lightweight **U SeaProtect® solution for B-15 wall extensions** helps you reduce energy consumption and greenhouse gas emissions while maintaining at least the same levels of safety and comfort as alternative solutions.

ENJOY MORE FREEDOM DURING THE DESIGN PHASE

The use of lightweight insulation helps make the ship's construction more stable. Where ship builders are subject to ever more demanding requirements in terms of safety, comfort and equipment complexity, reducing the weight of insulation enables you to increase the deadweight of your vessels. Depending on the project, this could mean increasing the number of passenger cabins, trailers or other crucial equipment, so that deadload becomes payload.



Save installation TIME AND COST



Controlling and optimising installation time and costs is essential for shipyards and installers to ensure smooth and profitable projects.

Where alternative solutions require metal reinforcements or a double insulation layer, our **U SeaProtect® solution for B-15 wall extensions** saves significant time during installation. Without any overlap or use of intumescent sealant, the system is really easy to install.

EASY HANDLING AND OPTIMISED LOGISTICS

The **U SeaProtect® solution for B-15 wall extensions** is at least 30% lighter than alternative stone wool solutions and therefore easier to handle. In addition, only 2 products are needed to build the extension, including penetrations.



Control NOISE POLLUTION



Noise is recognised as an environmental pollutant that has a significant impact on our health and wellbeing. Acoustic comfort is therefore an essential consideration in any marine and offshore project for the benefit of both passengers and crew members. Controlling sound and vibration levels is an integral part of ship design, especially for passenger ships where comfort is a priority.

Insulation plays a key role in reducing unwanted noise to create a healthier and more enjoyable experience on any kind of vessel.

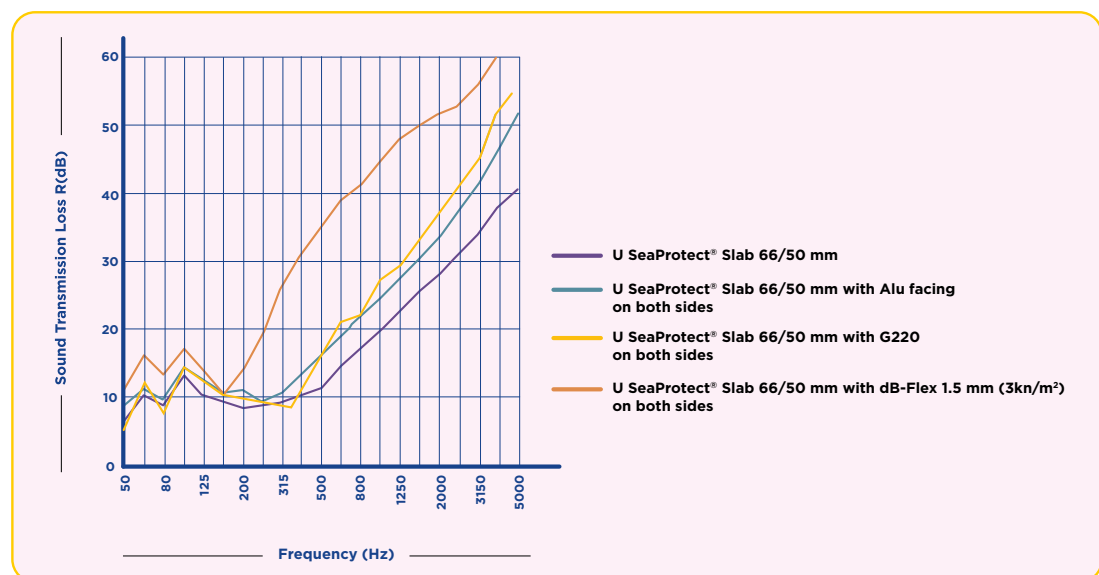
Our B-15 wall extension, that is vertically installed above partitions in the plenum, creates a sound barrier to improve the room to room sound insulation.

As usually the cabin linings do not reach the structural deck, a horizontal transmission path for the sound via the void over the suspended ceiling is created. Therefore, traditional acoustic ceilings often provide insufficient sound insulation. In these cases, our B-15 wall extensions offer additional sound insulating properties.

With a sound insulation index up to 21 dB, our **U SeaProtect® solution for B-15 wall extensions** is a best-in-class solution on the market. **U SeaProtect® Slab 66** in 50 mm is highly absorbent ($\alpha_w = 1$).

When higher sound insulation is required, our solution can be coupled with the **SeaProtect dB-Flex Alu** membrane to reach a sound insulation index up to 32 dB.

Our system for B-15 wall extensions has been fully characterised in an acoustic lab:



Sound
insulation
index

Measurements and calculations acc. EN ISO 10140/1-5

Rw (U SeaProtect® 66 / 50) = 18 dB

Rw (U SeaProtect® 66 / 50 G220 on both sides) = 21 dB

Rw (U SeaProtect® 66 / 50 Alu on both sides) = 21 dB

Rw (U SeaProtect® 66 / 50 with dB-Flex Alu 1.5 mm on both sides) = 32 dB

Provide thermal comfort & SAVE ENERGY

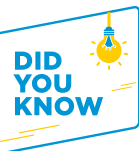


Thermal comfort is an important element of green shipbuilding. The concept goes beyond simple temperature control to ensure crew and passengers are warm enough, but it is mainly about minimising energy consumption and CO₂ emissions.

To create the ideal balance between comfort and energy savings, ship designers focus on both ambient temperature and humidity. This particularly involves the use of insulation with low thermal conductivity.

Our U SeaProtect® B-15 wall extensions solution has excellent thermal properties that contribute to the overall comfort on board:

λ value at 10°C (EN12667)	0,031 W/m.K
U value	0,445 W/(m².K)



Our U SeaProtect® solution for B-15 wall extensions saves energy, not only because of its low thermal conductivity, but also because of its reduced weight.

U SEAPROTECT® B-15 WALL EXTENSIONS - ALL YOU NEED TO KNOW

**Discover the different
components you will need
to build your B-15 wall
extensions with our U
SeaProtect® solution.**

Components of the U SeaProtect® system FOR B-15 WALL EXTENSIONS



THE EXTENSION CONSISTS OF 1 SINGLE LAYER OF U SeaProtect® Slab 66 WITH A THICKNESS OF 50 MM.

Available facings (optional, on one or both sides):

- › White glass fabric (G220)
- › Black glass fabric (G120)
- › Aluminium foil (Alu1)
- › SeaProtect dB-Flex Alu membrane

Dimensions: 600 x 1200 mm*

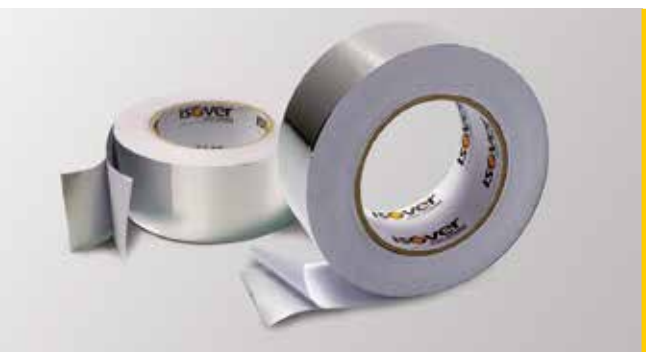
**other dimensions upon request with minimum order quantity*



THE PENETRATIONS ARE REINFORCED WITH U SeaProtect® Roll 46 Alu1 WITH A THICKNESS OF 30 MM.

Facing: Aluminium foil

Dimensions: 1200 x 7000 mm

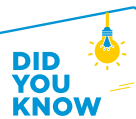


SeaProtect Tape Alu IS USED TO FIX THE STRIP OF INSULATION AROUND THE PENETRATIONS.

For extensions made with Alu1 facing or **SeaProtect dB-Flex Alu** membrane, **SeaProtect Tape Alu** is also used to seal the joints, while for extensions made with G220, **SeaProtect Tape G120** is recommended.

OTHER REQUIRED ACCESSORIES ARE STANDARD ACCESSORIES:

- › L-shape perforated steel profile
- › Z-shape perforated steel profile
- › Steel tape, pins, washers



Our RAL- and EUCEB-certified ULTIMATE™ fibres are bio-soluble and exonerated from any classifications on carcinogenic, mutagenic or toxic-for-reproduction criteria.

U SEAPROTECT® B-15 WALL EXTENSIONS - HOW TO INSTALL?

**Learn how to install
U SeaProtect® B-15 wall
extensions, easily and step
by step.**

Understand all INSTALLATION DETAILS

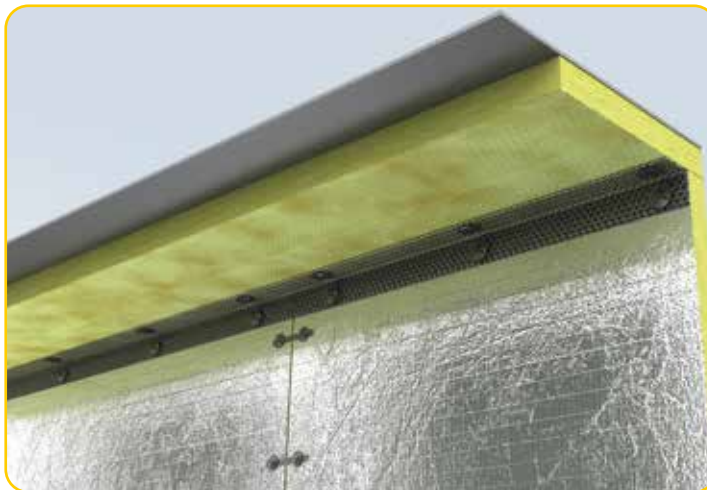
GENERAL VIEW OF THE U SEAPROTECT® B-15 WALL EXTENSION



The B-15 wall extension is composed of one layer of 50 mm thick and 600 mm wide **U SeaProtect® Slab 66**.

The extension is placed between the top of the B-15 wall and the steel deck, and attached to the ship's structure using L- and Z-profiles, respectively at the top and bottom of the extension.

DETAILED VIEW OF THE TOP FIXATION

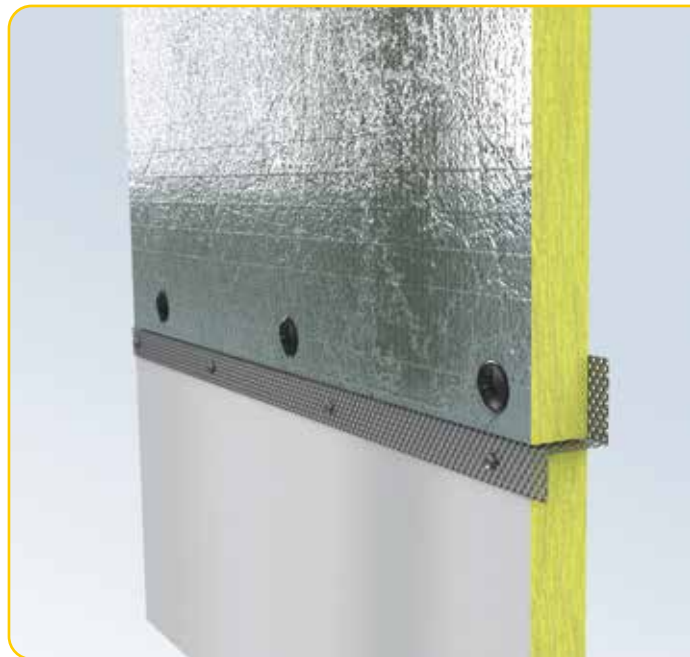


A perforated L-profile is fixed under the steel deck (which can be either insulated or non-insulated), using pins and double washers (maximum spacing 300 mm).

DETAILED VIEW OF THE BOTTOM FIXATION

A perforated Z-profile is fixed on the top of the B-15 walls with screws (maximum spacing 150 mm).

At the bottom of the wall extension, the insulation slabs are fixed to the Z-profile, by means of steel pins and washers c-c max. 300 mm.



DETAILED VIEW OF THE JOINTS



The different **U SeaProtect® Slab 66** panels are interconnected by steel connecting bridges (maximum spacing approximately 200 mm). Connecting bridges are used for both vertical and horizontal joints and consist of steel pins, washers and perforated steel strips on both sides of the extension.

DETAILED VIEW OF A PENETRATION



The passage of pipes, electrical cables and ventilation ducts is authorised if they are protected with **U SeaProtect® Roll 46 Alu1** with a thickness of 30 mm to maintain the fire integrity of the B-15 wall extension.

U SeaProtect® Roll 46 Alu1 is cut into 150 mm wide strips, wrapped around the pipe or duct and tied with aluminium tape. A steel tie wire is attached to the middle of the insulation strip. These steps are performed on either side of the extension.

To discover all of our **U SeaProtect®** insulation solutions, see our “Marine & Offshore Insulation Guide”



ABOUT US



Discover the Saint-Gobain Group, and read more about Saint-Gobain Technical Insulation, the world leading supplier of sustainable insulation solutions.



MAKING THE WORLD A BETTER HOME



Saint-Gobain designs, manufactures and distributes solutions for the construction, mobility, healthcare and other industrial application markets. Developed through a continuous innovation process, they provide wellbeing, performance and safety while addressing the challenges of sustainable construction, resource efficiency and the fight against climate change.

This strategy of responsible growth is guided by the Saint-Gobain purpose, "MAKING THE WORLD A BETTER HOME", which responds to the shared ambition of the women and men in the Group to act every day to make the world a more beautiful and sustainable place to live in.







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